

Effects of Workplace Safety and Health Initiatives on Workers' Compensation Claims in Massachusetts State Government

Abstract

In 2009, Massachusetts enacted Executive Order 511, directing implementation of a workplace safety and health management system for state workplaces. Data from 2005-2014 shows a 12.2% decrease in workers' compensation claims after this initiative, a 27% greater decrease than that of state higher educational institutions for which the Executive Order did not apply. Alternative reasons for the changes are reviewed and ruled out. This strongly suggests that public as well as private employers should consider implementation of a workplace safety and health management system.

Definition

A workplace safety and health management system is defined for purposes of this article as a systematic process for managing workplace safety and health issues, including the assignment of roles and responsibilities, incident reporting, data analysis, and accountability.

Introduction

Previous articles have reviewed the effects of enforcement on workers' compensation claims (Gray and Scholtz (1993); Gray and Mendelhoff (2002); Bradbury (2006); Haviland, et al (2012)). This article differs in that it investigates the positive effects of proactive implementation of a safety management system and the resulting organizational shift to emphasizing workplace safety.

Massachusetts state employees prior to April 2009 had been excluded from formal workplace safety and health protections. While certain agencies may have adopted safety and health initiatives these were variable in scope, at the discretion of the agency and lacked any central enforcement. In April of 2009, then Governor Deval Patrick instituted Executive Order 511 (EO 511), which called for the creation and implementation of a workplace safety and health management system, and as a result also raised awareness of the issue. This article investigates the effects implementing a safety and health management system under EO 511 had on reducing workers' compensation claims for state employees.

Literature Review

The investigation into existing literature found limited studies into the effects of workplace safety and health management systems on workers' compensation claims. A few studies have shown a decrease in

the number of work related injuries and lost time due to both routine and surprise inspections. However, these studies focused primarily on the impact penalties had in reducing work related injuries.¹

Hesapro Partners (2013) focused on how safety and health should be viewed as an investment in the European workplace. One study used in the paper was the survey “Working Well: A Global Survey for Health Promotion and Workplace Wellness Strategies” which received responses from over 10 million people in 45 countries in 2009. From the data the researchers found that 33%-47% of employers do not know the impact of their health promotion initiatives on their organization’s strategic objectives. This research paper was based on survey findings in Europe and not results from workplace safety and health initiatives.

Haviland, Burns, Gray, Ruder & Mendeloff (2012) studied the effects of OSHA (Occupational Safety and Health Administration) inspections for the state of Pennsylvania and whether or not it was related to a reduction in injury rates in the manufacturing industry. The researchers used a sample size of 8,645 firms, 23% of which had inspections. The inspections used in the study were either programmed or due to a complaint both of which could result in a penalty to the organization. The findings showed that inspections with penalties reduced injuries by an average of 19-24% annually in the two years following the inspection. The results were only found in workplaces that had 20 to 250 employees and in conditions where penalties were imposed. This study did not look at the possible inherent benefits of workplace safety and health initiatives.

Foley, Fan, Rauser & Silversmith (2012) conducted a research study on the effects of regulatory enforcement and consultation in Washington State. The purpose of the study was to see if enforcement and consultation visits reduced the workers compensation claims incidence rate, time loss, and costs over a 10-year period. To do this the researchers collected the number of claims, hours, and DOSH [Division of Occupational Safety and Health] activity were extracted from the LINIIS [Labor & Industries Integrated Information System] and WIN [WISHA Information Network] databases for each state fund employer workers compensation account. Only companies with at least 10 full time employees were used

¹ The literature search looked into research papers, studies, and articles using key words and phrases throughout several online databases. The databases that were used in the research were Google Scholar, ABI/Inform, Academic Search Complete, First Research, PubMed and LexisNexis. Common key words and phrases were used to find relevant material within the databases’ advanced search options. The searches performed used individual words and phrases such as, “health and safety”, “workers compensation”, “ROI”, “workplace safety”, “study”, “programs”, and “OSHA”. During the literature research over 50 papers, studies, and articles were reviewed. Several of the findings repeated the same results, and the majority lacked data or evidence to support their claims.

resulting in a sample size of 86,314 accounts being studied. Out of the accounts, there were 1,139 consultation only, 3,985 enforcement only, and 289 both consultation and enforcement. The results found that enforcement activities make a significant contribution to reducing claims incidence rates [CIR] and costs. They also found that inspections were associated with a 4% decline in time-loss claims rates relative to uninspected workplaces. This study did not look at the possible inherent benefits of workplace safety and health initiatives.

The Mine Safety and Health Administration (MHSA, January 26, 2015) created a stricter violations process after a deadly 2010 mine explosion, which killed 29 miners. The top 12 of the 51 mines identified in the 2010 screening had been cited for 5,431 total violations, 2,050 of which were significant and substantial (S and S) violations. In contrast, the 12 mines identified in 2014 had been cited for 1,952 total violations, 857 of which were S and S violations. This is a 64% reduction in total violations and a 58% reduction in S and S violations. They also found that mines that were undergoing or went through a Pattern of Violation (POV) or Potential Pattern of Violation (PPOV) process within the last 6 months had shown improvement. The results showed that the operator reported rate of lost time injuries in these mines went down 48%. This study concentrated on the impact of enforcement in the mining industry on reducing violations. No correlation between enforcement, reducing violations, and reducing workplace injuries was investigated.

In Bradbury (2006), the researchers estimated that a 10% increase in inspections is associated with a 1% decline in occupational injuries. However, there has been conflicting studies since these findings. Gray and Scholz (1993) found that inspections associated with penalties resulted in a 22% decline in injuries, yet Gray and Mendeloff (2002) found that post-1985 and into the 1990s responsiveness to workplace safety inspections slowly declined to almost nothing. Using a different estimation technique Klick and Stratmann (2003) found a positive correlation between inspections and death rates in the 1990s. The authors hypothesized that this counter-intuitive outcome results from the moral hazard of workers overestimated the effectiveness of OSHA standards.

In summary, there was no conclusive data in these studies, some of which are several decades old, and none of which looked at the impact of creating a safety and health management system on workers' compensation claims.

The American Society of Safety Engineers Board of Directors (2002) adopted a report that argued that there is strong return on investment from safety, health, and environmental program management, as well

as improvements in morale, productivity, and product quality. The report only cited anecdotal examples from companies to support this conclusion.

A statistic that is often cited by safety professionals (e.g. Oster, 2015) is that every \$1 in safety and health investment results in \$3 or more of savings in workers' compensation as illnesses, injuries, and fatalities decline. This statistic is based on a study by Liberty Mutual (2001) where 200 executives responsible for workers compensation and other commercial insurances were surveyed. In this survey 61% of executives believed their companies received a return on investment of \$3 or more for each \$1 invested in safety. A follow-up study that found similar results was published by the American Society of Safety Engineers (Huang, Leamon, Courtney, DeArmond, Chen & Blair, 2009). In this study, 231 financial decision makers were surveyed on their perception of the savings generated by safety and health initiatives. While an excellent step in researching the return on investment for safety and health programs, these studies lack first hand financial data, and rather rely on the participants' best estimates.

Conditions Prior to Executive Order 511

Prior to EO 511 Massachusetts state workplaces and employees were not covered by any statewide workplace safety and health regulations or initiatives. Some agencies were required through other mechanisms, such as local code or accreditation requirements, to have certain workplace safety and/or health protections in place. However, this was limited in scope, not covering as wide an array of hazards as OSHA regulations, and only applied to a handful of agencies. In addition to these limited protections a few agency heads had implemented at various times safety and health programs. These were not widespread and lacked any central authority or accountability. EO 511 was the first comprehensive, formal action taken to address workplace safety and health for employees of the Commonwealth (Executive Office of Labor and Workforce Development, March 2014). (see appendix A for a copy of EO 511).

Executive Order 511

According to the Massachusetts Court System website (<http://www.mass.gov/courts/case-legal-res/law-lib/laws-by-source/exec/>), Executive Orders are issued by the Governor under various constitutional powers. While some may be largely ceremonial, others are substantive instruments with the force of law. Executive Order 511 was issued by Governor Deval Patrick on April 27, 2009. Although limited in its

scope to just Executive Branch employees, EO 511 was the first statewide initiative to address workplace safety and health for Massachusetts state employees². Specifically, it listed the following actions:

- Appointing of Secretariat Safety and Health Coordinators;
- Mandating of injury and illness record keeping;
- Creation of a data collection method for use by the Department of Occupational Safety (later called the Department of Labor Standards, or DLS) and the Department of Public Health (DPH);
- Mandating participation in the Federal Bureau of Labor Statistics survey if selected;
- Creation of Massachusetts Employee Safety and Health Advisory Committee;
- Establishing of secretariat and, where appropriate, department, agency, and/or division, joint labor-management safety and health committees. These committees were instructed to survey safety and health hazards and existing safety and health measures, evaluate the effectiveness of those measures, and make recommendations for improvements. The process was to be on-going with reports submitted annually.

EO 511 did not call for the implementation or use of workplace safety and health standards. Instead it brought attention to workplace safety and health issues, and called for the creation of an infrastructure that would allow for on-going assessment and improvement of workplace conditions. The data collection and joint labor-management committees allowed for an assessment of existing safety and health systems, which provided the Massachusetts Employee Safety and Health Advisory Committee the information needed to identify effective and practical strategies and initiatives to improve the workplace safety and health of Massachusetts Executive Branch employees.

Implementation required over 90 trainings for the Secretariat Safety and Health Coordinators and members of the joint labor-management safety and health committees on the role of the committees, safety and health data analysis, and hazard prioritization.

Data Collection

The April enactment of EO 511 aligned almost exactly with the Massachusetts fiscal year, which runs from July 1st through June 30th. As a result, this study used Massachusetts fiscal years 2005 through 2009 as the pre-EO 511 period and fiscal years 2010 through 2014 as the post-EO 511 period. All state agencies are required to submit workers' compensation claims to the Executive Office of Administration and Finance (A&F), which collects and tracks the claims. The data used was from the A&F database using specific queries to select data only from those agencies relevant to the study.

² The Executive Branch is comprised of eight secretariats Administration and Finance; Energy and Environmental Affairs; Housing and Economic Development; Health and Human Services; Labor and Workforce Development; Public Safety and Security; Transportation and Public Works; and Education. The Office of Public Safety and Security did not participate in EO 511, however, their data is included since they are a part of the Executive Branch.

The research team attempted to use workers' compensation cost data to analyze the effects of EO 511. In doing so, the research team looked at cost data as accounted for in two different ways, but no conclusions were able to be drawn. The research team analyzed the cost data using cash accounting where costs were recognized based on the fiscal year they were paid out. The issue that was found with this accounting method was that workers' compensation is sometimes paid out over several years. Claim payments crossed over from the pre-EO 511 fiscal years to the post-EO 511 fiscal years. Therefore, costs were being assigned to years when EO 511 was in effect, but since they had occurred prior to EO 511 it had not had an impact on reducing those costs. The results of this method were inconclusive.

Members of the research team reallocated the costs so that all expenses related to a claim were accounted for in the year of the claim. The aim was to roll back the costs to the year when the claim occurred to separate pre-EO 511 from post-EO 511 costs. This method also proved inaccurate and grossly overstated the effect of EO 511 since the pre-EO 511 years had between five to ten years to accrue costs whereas the post-EO 511 years only had between zero to four years to accrue costs.

The research team determined to exclusively use the number of claims for analyzing the effect of EO 511 since claims occur at a specific time and do not continue to accrue, but rather occur discretely.

Department of Corrections Exclusion

For purposes of this research workers' compensation claims from the Massachusetts Department of Corrections (DOC) were excluded. The DOC is primarily responsible for the care and custody of those individuals sentenced to state prison. The DOC instituted extensive organizational changes beginning in 2003. The resulting improvements included many initiatives that resulted in a reduction in workers' compensation claims. However, this was a mix of administrative changes, accounting changes, reductions in fraud and abuse, as well as workplace safety improvements. Since it was a mix of improvements that led to dramatic decreases in workers' compensation claims for the DOC, and none of those changes were related to EO 511, it was determined that DOC workers' compensation claims should be excluded from this study.

State Higher Education Institutions as a Comparison Group

To further validate these results they were compared to the workers' compensation claims for state higher educational institutions for the same time period (Figure 2). State higher educational institutions are a useful control group since they are also state agencies, but were not covered by EO 511. Furthermore, they have a mix of high and low risk workplaces, as well as high and low risk jobs. Lastly, they are fairly

stable work environments with little changes to the means of production (unlike for instance manufacturing or construction).

Findings

Despite not requiring the use of specific workplace safety and health standards, this initiative yielded decreases in the number of workers' compensation claims. During the five fiscal years prior to EO 511 (FY2005 through FY2009) Executive Branch agencies³ averaged 3,449 claims per year. In the five years after EO 511 (FY2010 through FY2014) Executive Branch agencies averaged 3,032 claims per year. This represents a 12.2% decrease with a statistical significance of $p < .01$ (Figure 1).

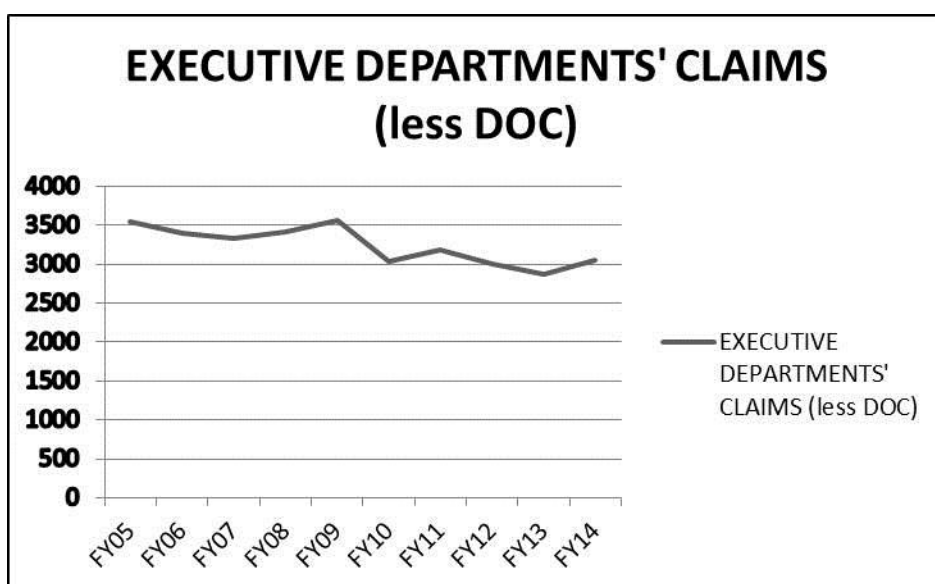


Figure 1: Executive Departments' Claims (less DOC) FY05-FY14

Using the same time periods, state higher educational institutions also experienced a decline in workers' compensation claims going from an average of 1,668 prior to EO 511 to 1,509 after EO 511 (Figure 2). This represents a 9.6% decline. The percent decline in Executive Branch agencies was 27% greater than that of the state higher educational institutions.

³ Not including Department of Corrections as explained in Department of Corrections Exclusion section.

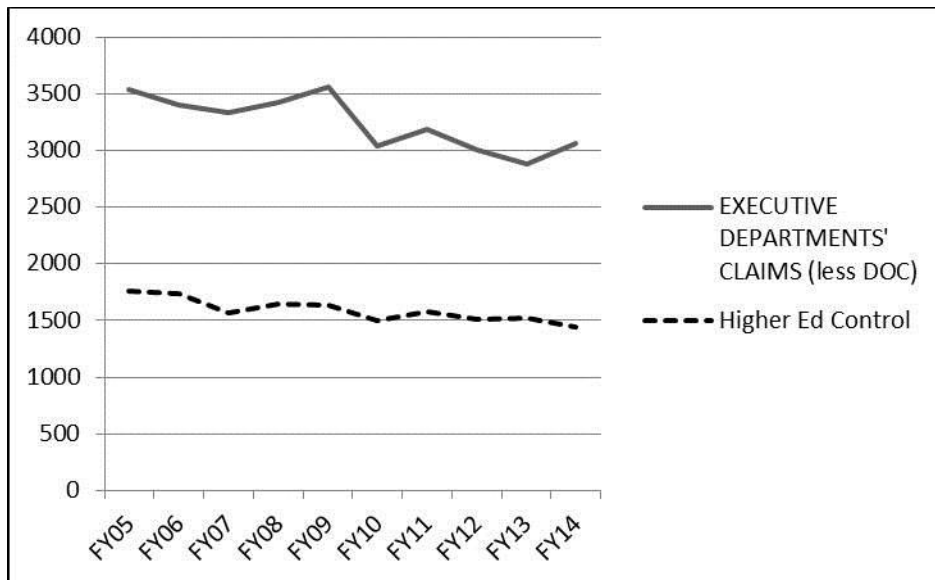


Figure 2: Executive Departments' Claims (less DOC) with Higher Education Control FY05-FY14

Changes by State Departments

EO 511 required centralized control of the implementation of the workplace safety and health infrastructure. The Department of Labor Standards (DLS) was charged with developing the system, implementing it across Executive Branch agencies, and assisting them through training and other support in maintaining it. This is evidenced in the nearly uniform improvements that were experienced in decreasing workers' compensation claims (Figures 3 and 4). The Executive Branch is comprised of eight secretariats Administration and Finance; Energy and Environmental Affairs; Housing and Economic Development; Health and Human Services; Labor and Workforce Development; Public Safety and Security; Transportation and Public Works; and Education. The Office of Public Safety and Security did not participate in EO 511, however, since it was covered by the program its data was included in this study.

Public Safety and Security, and Energy and Environmental Affairs both experienced an increase in claims pre-EO 511 compared to post-EO 511 (7% and 10% respectively). Since Public Safety and Security failed to implement the safety and health infrastructure this increase is not unexpected. However, it is unclear as to why Energy and Environmental Affairs had an increase in claims. The Office of Education minus higher education (since that was not covered by EO 511) had no claims pre-EO 511 or post-EO 511. Administration and Finance; Housing and Economic Development; Health and Human Services; Transportation and Public Works had decreases that ranged from 2% to 33%. Labor and Workforce Development (LWD) had a 56% decrease in workers' compensation claims. This is most likely due to the fact that LWD was the secretariat responsible for oversight of the DLS implementation of EO 511.

This resulted in a heightened awareness of EO 511, the efforts made as part of it, and the strictest adherence to the implementation plan.

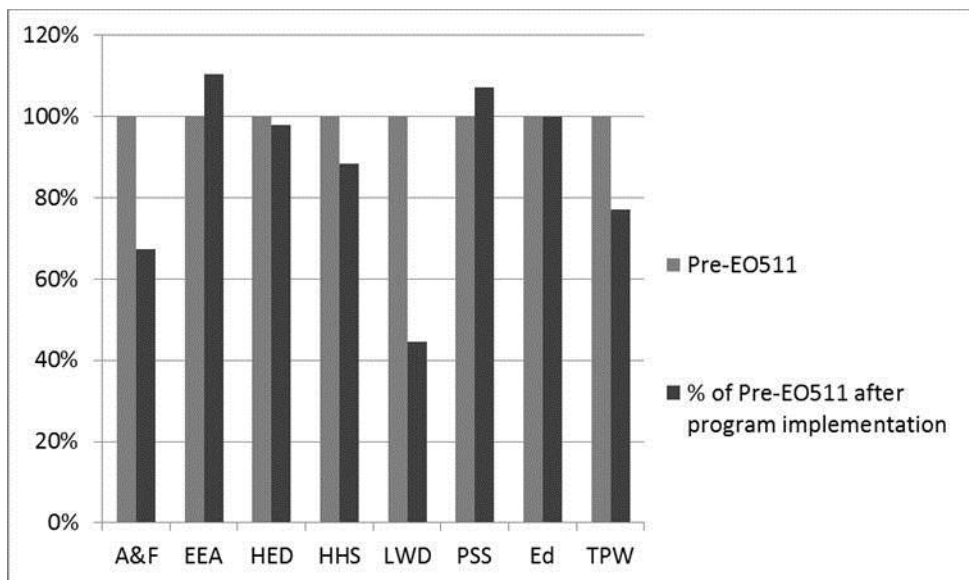


Figure 3: Percent of Workers' Compensation Claims by Secretariat after EO 511 Program Implementation

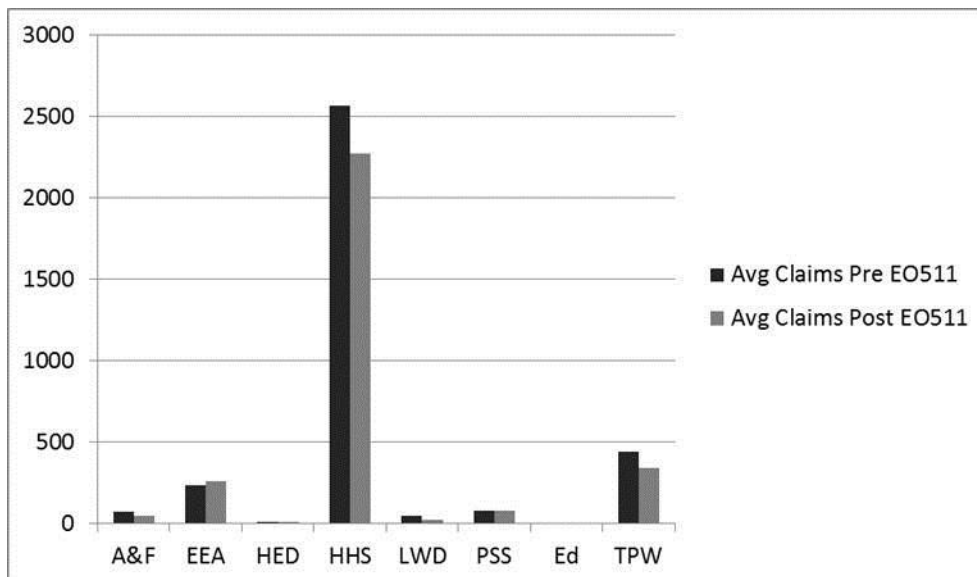


Figure 4: Average Workers' Compensation Claims per Year by Secretariat pre and post EO 511

The five secretariats that experienced decreases in workers' compensation claims are comprised of vastly different workplaces. These range from high hazard workplaces such as state hospitals and road construction to low hazard workplaces such as offices and training facilities. While not conclusive this indicates the possibility that instituting a workplace safety and health management system can have benefits in any workplace. More research would need to be conducted to confirm this finding.

Discussion

Other Possible Causes of Reduction in Workers' Compensation Claims

The research team investigated a number of other possible causes for the reduction in the number of workers' compensation claims before coming to the conclusion that the safety and health efforts made as a result of EO 511 were the cause of the reduction.

According to Hartwig (1997), economic growth, which leads to increases in employment, is a strong influencing factor on workers' compensation claims. As employment expands workers' compensation claims increase. Hartwig states that this is a mix of increased exposure to risk due to more employees in the workplace, increased use of overtime leading to exhaustion, and new workers entering the workplace with less experience. The findings of this study have been supported by Powers (2010).

Based on this study an argument could be made that the reduction in Executive Branch workers' compensation claims could be due to expansion or contraction of the workforce. However, the number of full time equivalents (FTEs) employed in the Executive Branch remained essentially unchanged on average between the period before and after EO 511 (down 2.9% in the post EO 511 time period). The control group of state higher educational institutions was also essentially unchanged on average over the period before and after EO 511 (down 3.4% in the post EO 511 time period).

There is conflicting research into if the "Great Recession" may have had any effect on workers' compensation claims beyond just its effect on employment. In Powers (2010), senior division executive for state relations for the National Council on Compensation Insurance, Peter Burton, states that the recession has generally favored retention of more experienced and better-trained workers, resulting in fewer injuries, while Mary Ann Krautheim, client strategy officer at Aon Risk Services, states that higher-than-expected unemployment in some industry sectors has added new stress for workers, distracting their safety focus in some cases. It is clear that more research is needed to determine if the "Great Recession" had an impact on workers' compensation beyond level of employment⁴.

⁴ Unfortunately, a complicating factor is that the "Great Recession," the beginning implementation of EO 511, and the largest single year drop in workers' compensation claims all occurred within the same 12 month time period. The research team determined since the only known link between a recession and workers' compensation claims is employment levels that the "Great Recession" did not have an effect on state employee workers' compensation claims since employment levels remained constant. No research has been able to show that a recession leads to less workers' compensation claims due to fear of job security, or any other factors. Additionally, some research has postulated that a recession could result in an increase in workers' compensation claims since those who are still employed would be doing the work of several people, but there has been no study to validate this concept. Without clear research the team relied solely on the employment level studies since they were fairly definitive. Combining those with the

The types of employment did not change over the course of the study period. There were no significant programs or departments that were closed or outsourced. The state maintained approximately the same level of risk throughout the study period. There were also no major technological changes or upgrades that could have led to a reduction in risk or workers' compensation claims. Lastly, the statutory workers compensation benefits did not change during the study period.

The data shows that proactive implementation of a safety management system and the resulting organizational shift to emphasizing workplace safety can lead to a reduction in workers' compensation claims beyond just those achieved as a reaction to enforcement. For any organization a reduction in workers' compensation claims represents a financial savings. In the case of the public sector, such savings can lead to more efficient and effective government.

Conclusions: Lessons for Massachusetts, Other States, and Employers at Large

Massachusetts Executive Branch employees prior to 2009 had never had statewide workplace safety and health protections. This presented a unique research opportunity since rarely does an organization go from having no workplace safety and health program to developing one on such a large, comprehensive scale as was done under EO 511.

The analysis of claims data from FY 2005-2014 shows a 12.2% decrease in claims after this initiative, 27% greater than that of comparable state higher educational institutions for which the order did not apply. Alternative reasons for the changes including changes in the size of the workforce, the impact of the great recession, types of employment, the environment, and other changes to the workers' compensation system were reviewed and ruled out.

Typically employers' safety and health programs evolve over time. This complicates research efforts since there is no clear starting point, or before and after data to compare. Massachusetts did have a clear starting point, and since EO 511 was limited to Executive Branch employees that allowed for the use of state higher educational institutions as a control group. What the data and research has shown is that EO 511, by creating a safety and health infrastructure, and by bringing attention to the issue, reduced workers compensation claims by 12.2%.

A next step in studying the effects of EO 511 would be to measure the safety climate created under the program to safety performance. Zohar (1980) was the first to define safety climate, and did so as a

fact that employment levels in the state did not change it was concluded that the recession was not the cause of the decrease in WC claims.

summary of molar perceptions that employees share about their work environments. Zohar measured safety climate using a validated 40-item survey tool. Scores on this survey were then correlated with safety program effectiveness as judged by safety inspectors. Subsequent studies have investigated the correlation between safety climate and safety performance in a variety of settings, such as hospitals (Singer, et al. 2009), as well as investigating correlation between a variety of forces (Wu, Chen and Li, 2008), and across cultures (Barbaranelli, Petitta & Probst, 2015). Through this research the Griffin and Neal (2002) model of safety climate's correlation to safety performance has become the standard, and is widely cited and utilized. In an effort to confirm these initial findings into the effect EO 511 had on reducing workers' compensation claims it would be informative to use the Griffin and Neal model to research the safety climate of the Massachusetts State Executive Branches to determine if it has changed under EO 511, and if so if it has led to an improvement in safety performance.

One consistent research finding is that in organizations with successful safety programs, top managers and leaders were strongly committed to safety. Workplace safety and health programs were integrated with the other management systems within the organization making it part of every employee's job (Occupational Safety and Health Administration, 2015). When safety was highly valued, and a safety climate and culture were supported, safety programs and performance were more effective and injuries were prevented (Wu, Chen and Li, 2008). In Massachusetts, EO511 was a clear signal that executive leadership in state government valued safety. They supported a comprehensive management system to improve safety instead of simply establishing rules and regulations. The data suggests that this is an effective approach.

It is unknown if these results are reproducible by other states and employers, but they do strongly suggest that employers who have not established a workplace safety and health system should consider it.

References

- Barbaranelli C, Petitta L, Probst T (2015). Does safety climate predict safety performance in Italy and the USA? Cross-cultural validation of a theoretical model of safety climate. *Accident Analysis and Prevention*, Vol. 77, April 2015: 35-44.
- Bradbury, J. C. (2006). Regulatory federalism and workplace safety: Evidence from OSHA enforcement, 1981-1995. *Journal of Regulatory Economics*, 29(2), 211-224. doi:<http://0-dx.doi.org.library.law.suffolk.edu/10.1007/s11149-006-6036-1>
- Bromley, D. B. (1990). Academic contributions of psychological counseling: I.A philosophy of science for the study of individual cases. *Counseling Psychology Quarterly* 3(3), 299-207
- Crowe, S., Cresswell, K., Robertson, A., Hubby, G., Avery, A., Sheikh, A. (2011). The case study approach. *BMC Medical Research Methodology* 11(100). <http://www.biomedcentral.com/1471-2288/11/100>
- Executive Office of Labor and Workforce Development. State Employee Health and Safety Achievements and Recommendations (March 2014).
- Foley, M., Fan, Z., Rauser, E., & Silverstein, B. (2012). The impact of regulatory enforcement and consultation visits on workers' compensation claims incidence rates and costs, 1999-2008. *American Journal of Industrial Medicine*, 976-990
- Governor's Commission on Corrections Reforms (June 30, 2004). Strengthening Public Safety, Increasing Accountability, and Instituting Fiscal Responsibility in the Department of Correction. Boston. <http://www.mass.gov/eopss/docs/eops/govcommission-corrections-reform.pdf>
- Gray, W. B. and Mendeloff, J.M. (2005). The declining effects of OSHA inspections on manufacturing injuries, 1979-1998. *Industrial and Labor Relations Review* 58 (4), 571-587
- Gray, W.B. and Scholz, J.T. (1993). Does regulatory enforcement work? A panel analysis of OSHA enforcement. *Law and Society Review* 27 (1), 177-214
- Hartwig, R. P. (1997). Riding the economic cycles: How growth and recession affect workers' compensation. *Compensation and Benefits Review*, 29(3), 12-19. Retrieved from <http://0-search.proquest.com.library.law.suffolk.edu/docview/213682920?accountid=28735>
- Haviland, A., Burns, R., Gray, W., Ruder, T., & Mendeloff, J. (2012). A new estimate of the impact of OSHA inspections on manufacturing injury rates, 1998-2005. *American Journal of Industrial Medicine*, 964-975
- Hesapro Partners. (2013). The Link between Productivity and Health and Safety at Work. 1-32. Retrieved January 9, 2015, from http://www.hesapro.org/files/Background_Research.pdf
- Huang, Y., Leamon, T.B., Courtney, T.K., DeArmond, S., Chen & Blair, M.F., (2009). Financial decision makers' views on safety. *Professional Safety*, April: 36-42. http://www.asse.org/assets/1/7/F2_Huangetal_0409.pdf
- Klick, J. and Stratmann, T. (2003). Offsetting behavior in the workplace. George Mason University School of Law, Law and Economics Working Paper Series. http://ssrn.com/abstract_id=397822, 1-27

Liberty Mutual. (2001). A majority of U.S. businesses report workplace safety delivers a return on investment [News Release]. Boston, MA.

http://www.foysafety.com/safety_news/Liberty%20Mutual%20Survey.pdf

MHSA (2015). From the Assistant Secretary's Desk —MSHA's Pattern of Violations reforms: A game changer in mine safety and mine safety culture. (2015, January 26).

<http://www.msha.gov/fromthedesk/fromthedesk09302014.asp>, 1-2

Neal, A., & Griffin, M. A. (2002). Safety climate and safety behavior. *Australian Journal of Management*, 27: 67-76.

Occupational Safety and Health Administration (2015). Creating a Safety Culture. Factsheet downloaded from: https://www.osha.gov/SLTC/etools/safetyhealth/mod4_factsheets_culture.html.

Oster, K.V. (2015). Return on investment for employee safety programs. Demand Media.

<http://smallbusiness.chron.com/return-investment-employee-safety-programs-47715.html>

Powers, M. B. (2010). Recession and Politics Impact Workers' Comp. *ENR: Engineering News-Record*, 265(9), 36

Singer S, Lin S, Falwell A, Gaba D, Baker L. (2009). Relationship of Safety Climate and Safety Performance in Hospitals. *Health Services Research*. 2009 Apr; 44(2 Pt 1): 399–421.

The American Society of Safety Engineers Board of Directors (June 8, 2002). Summary Addressing the Return on Investment (ROI) for Safety, Health, and Environmental (SH &E) Management Programs.

<http://www.asse.org/professionalaffairs/action/return-on-investment-for-safety/>

The Commonwealth of Massachusetts Department of Correction Advisory Council (June 17, 2005). Preliminary Report. Boston. <http://www.mass.gov/eopss/docs/doc/docac-prelim-report.pdf>

The Writing Studio/Writing@CSU (5/16/15). Case Studies.

<http://writing.colostate.edu/guides/guide.cfm?guideid=60>

Tsung-Chih Wu, Chi-Hsiang Chen, Chin-Chung Li. (2008). A correlation among safety leadership, safety climate and safety performance. *Journal of Loss Prevention in the Process Industries*. Vol. 21, Issue 3, May 2008: 307-318

Weather.gov (2015). <http://www.weather.gov/climate/index.php?wfo=box>

Yin, R. K. (1994). *Case Study Research Design and Methods* Second Edition. London: Sage Publications

Zohar, Dov (1980). Safety Climate in Industrial Organizations: Theoretical and Applied Implications. *Journal of Applied Psychology* 1980, Vol. 65, No. 1, 96-102. Technion—Israel Institute of Technology, Haifa, Israel.



DEVAL L. PATRICK
GOVERNOR

OFFICE OF THE GOVERNOR
COMMONWEALTH OF MASSACHUSETTS
STATE HOUSE • BOSTON, MA 02133
(617) 725-4000

TIMOTHY P. MURRAY
LIEUTENANT GOVERNOR

By His Excellency

DEVAL L. PATRICK
GOVERNOR

EXECUTIVE ORDER NO. 511

**Establishing the Massachusetts
Employee Safety and Health Advisory Committee**

WHEREAS, it is the policy of the Executive Branch of the Commonwealth of Massachusetts to provide a healthy and safe working environment for all of the Commonwealth's employees;

WHEREAS, workplace injuries can have devastating effects on injured workers and their families, both personally and financially;

WHEREAS, workplace injuries can impede the ability of a state agency or department to deliver services;

WHEREAS, it is the Commonwealth's policy to lead by example in protecting employees in the workplace;

2009 APR 28 AM 9:30
SECRETARY OF STATE
RECORDS DIVISION

WHEREAS, the Commonwealth's Division of Occupational Safety and Human Resources Division have taken steps to protect the safety and health of the Commonwealth's employees through an alliance with the Federal Occupational Safety and Health Administration and an education and training program focused on safety and health issues;

WHEREAS, the initiatives that have been undertaken by the Division of Occupational Safety and the Human Resources Division are important steps toward enhancing the occupational safety and health of the Commonwealth's employees; and

WHEREAS, further information is needed to determine what additional measures are warranted to protect the safety and health of the Commonwealth's employees.

NOW, THEREFORE, I, Deval L. Patrick, Governor of the Commonwealth of Massachusetts, by virtue of the authority vested in me by the Constitution, Part 2, c. 2, § 1, Art. I, do hereby order as follows:

Section 1. This Executive Order shall apply to all state agencies in the Executive Branch. As used in this Order, "state agencies" shall include all executive offices, boards, commissions, agencies, departments, divisions, councils, bureaus, and offices, now existing and hereafter established.

Section 2. Each secretariat shall forward to the Commissioner of the Division of Occupational Safety and to the Chief Human Resources Officer, on or before August 1, 2009, the name and contact information of a qualified person who shall serve as the secretariat's Safety and Health Coordinator. The Safety and Health Coordinator will be responsible for ensuring the implementation of this Executive Order within the secretariat and shall serve as the secretariat's point of contact for training and other safety and health activities conducted by the Human Resources Division and/or the Division of Occupational Safety. The Division of Occupational Safety will conduct training for and work with the Coordinators to assist them in carry out their responsibilities.

Section 3. All state agencies shall keep records concerning occupational injuries, illnesses, and deaths in compliance with regulations promulgated under the Occupational Safety and Health Act, as set forth in 29 CFR Part 1904, titled Recording and Reporting Occupational Injuries and Illnesses.

Section 4. By August 1, 2009, the Human Resources Division, in conjunction with the Division of Occupational Safety and the Massachusetts Department of Public Health Occupational Health Surveillance Program, shall establish a process for collecting data recorded by state agencies pursuant to this Executive Order. The Division of Occupational Safety shall provide training to state agencies to facilitate their record-keeping and reporting under 29 CFR Part 1904. The Human Resources Division shall, to the extent permitted by law, make data reported under this system available to the Division of Occupational Safety and the Occupational Health Surveillance Program, and to the Massachusetts Employee Safety and Health Advisory Committee established under this Executive Order.

Section 5. All agencies that have workplaces selected by the Bureau of Labor Statistics as sample units for participation in the annual Bureau of Labor Statistics' Survey of Occupational Injuries and Illnesses shall comply with the survey's reporting requirements relating to injury and illness data.

Section 6. The Massachusetts Employee Safety and Health Advisory Committee is hereby established, and shall be appointed by the Governor, to evaluate injury and illness data, recommend training and implementation of safety and health measures, monitor the effectiveness of safety and health programs, and determine where additional resources are needed to protect the safety and health of the Commonwealth's employees. The advisory committee shall have 13 members, comprised as follows:

1. the Director of Labor, or his or her designee, who shall serve as the Co-Chairperson,

2. the Chief Human Resources Officer, or his or her designee, who shall serve as Co-Chairperson,
3. the Commissioner of the Division of Occupational Safety,
4. the Secretary of Administration and Finance, or his or her designee,
5. the Director of the Office of Employee Relations, or his or her designee,
6. the Commissioner of the Department of Public Health, or his or her designee,
7. the Commissioner of the Department of Industrial Accidents, or his or her designee,
8. Four representatives from labor unions representing the employees of the Commonwealth,
9. One representative from a community-based health and safety advocacy organization, and
10. One member of the faculty of the Department of Work Environment at the University of Massachusetts, Lowell.

Section 7. By November 1, 2009, each secretariat and, where appropriate, each department, agency, and/or division, in conjunction with the applicable collective bargaining representatives, shall establish joint labor-management health and safety committees. Such committees shall, in conjunction with the safety and health coordinators established pursuant to this Order, survey safety and health hazards and existing safety and health measures within the secretariat, department, agency or division, evaluate the effectiveness of those measures and make recommendations to the Secretary on ways to improve employees' safety and health. Each secretariat shall forward committee survey results and recommendations to the Massachusetts Employees Safety and Health Advisory Committee established by this Order on or before October 1, 2010, and thereafter shall report annually to the Advisory Committee on its progress toward enhancing the safety and health of its employees.

Section 8. To the extent permitted by law, state agencies shall make all reasonable efforts to furnish such information and assistance as the Massachusetts Employee Safety and Health

Advisory Committee reasonably deems necessary to accomplish its purposes.

Section 9. Nothing in this Executive Order shall be construed to require action inconsistent with any applicable state or federal law.

Section 10. This Executive Order shall continue in effect until amended, superseded, or revoked by subsequent Executive Order.



Given at the Executive Chamber in Boston this 27th day of April in the year of our Lord two thousand and nine and of the Independence of the United States, two hundred and thirty-three.

A handwritten signature in black ink, appearing to read "Deval L. Patrick".

DEVAL L. PATRICK
GOVERNOR
Commonwealth of Massachusetts

A handwritten signature in black ink, appearing to read "William Francis Galvin".

WILLIAM FRANCIS GALVIN
Secretary of the Commonwealth

GOD SAVE THE COMMONWEALTH OF MASSACHUSETTS